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TECHNICAL REPORT

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THE IMPACT OF A MODIFIED TRAINING
SCHEME ON PERFORMANCE OF US COAST
GUARD SUBSISTENCE SPECIALISTS.



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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A comparative study was conducted of two training courses for US Coast Guard Subsistence Specialists as part of a project to evaluate the training of Navy Mess Management Specialists. One of the courses had been modified by an increase in the amount of "hands-on" time, and an overall reduction in course time. School and on-duty performance were compared for graduates of the training courses. Overall, the training provided by the modified course received more favorable evaluations leading to a recommendation to the Navy of increased "hands-on" training for their Mess Management Specialists.		

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SUMMARY

A modification of the training program for U.S. Coast Guard Subsistence Specialists (SS), which included an overall reduction in course time and an increase in the amount of "hands-on" time was studied as part of a project to evaluate the training of Navy Mess Management Specialists. Surveys and interviews concerning the efficiency of the old and revised SS courses were administered to instructors and students at the SS School in Petaluma, CA, and to graduates of the new course, graduates of the old course, and their supervisors at both ship and shore stations. Overall, the training provided by the new course was evaluated favorably by the different groups of SS's. Both the galley and laboratory phases — the "hands-on" portions — of the new course were generally rated as very helpful. The galley phase was praised for its "hands-on", practical application and the laboratory phase, for the preparation it provided for entering the galley. In general, training in sanitation and food preparation areas received relatively high ratings, and training in such non-food preparation areas as storage, menu planning, and paperwork (record keeping) received lower ratings. Graduates of the new course gave their training higher ratings than graduates of the old course; school instructors also reported perceiving the new curriculum as better than the old in most respects. New graduates received higher grades than old graduates in the galley phase of training, apparently reflecting the positive contribution of the additional "hands-on" laboratory experience. Supervisors rated the performance of new graduates higher than that of old graduates in many categories related to the curriculum changes. These findings support a recommendation to the Navy of increased "hands-on" training for their Mess Management Specialists.

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PREFACE

The research effort documented in this report was conducted as part of the DoD Food Research, Development, Testing, and Engineering Program in support of the DoD Food Service Program (DoD Manual 1338.10-M). The scope of the Food Service Program includes food service personnel training and motivation as one of the eleven elements.

The U.S. Navy's first priority in the FY75 program was a requirement to:

"Investigate methods currently employed for selecting, training and motivating Navy personnel in food service and evaluate the effectiveness of these methods. From this review, the study should provide alternatives and recommendations to improve Navy food service training."

The Operations Research/Systems Analysis Office (OR/SA), Service Requirement USN 5-1, of the US Army Natick Research and Development Command was designated the Lead Laboratory for the requirement. The study has been conducted as one of several in the Task AC: "Short Range Studies of Military Feeding Problems". Significant support has been received from the Behavioral Sciences Division, Food Sciences Laboratory (FSL) in this research effort.

The authors would like to acknowledge the *extremely high level of cooperation* extended by the U.S. Coast Guard in this effort. Initial enthusiastic support was received from Captain P. E. Schroeder, Chief, Training and Education Division, Office of Personnel, U.S. Coast Guard Headquarters; Commander Bradley Wood, Training Officer; CWO Billy J. Bush, Assistant Training Officer; and SSCS Jerome Anderson, Subsistence Specialist School Program Supervisor, U.S. Coast Guard Training Center, Petaluma, CA. The spirit of cooperation continued with the instructors and students at the Training Center, district commanders, and personnel at the individual ships and stations visited and surveyed by mail. A special note of appreciation is extended to LTJG Robert McCanna of the Training and Education Division who coordinated site visits and distribution of mail surveys.

We would like to thank Dr. Herbert Meiselman, Behavioral Sciences Division, Food Sciences Laboratory, U.S. Army Natick Research and Development Command who administered some of the interviews, and Ms. Anne Martin of the same organization who performed the major portion of the data reduction.

We would also like to acknowledge the thoughtful review and comment of the following individuals - Dr. Robert J. Byrne, Chief, Operations Research/Systems Analysis Office, Mr. Richard P. Richardson, Project Manager, Dr. Gerald Hertweck, and Dr. D. Paul Leitch.

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THE IMPACT OF A MODIFIED TRAINING COURSE ON PERFORMANCE OF U.S. COAST GUARD SUBSISTENCE SPECIALISTS

INTRODUCTION

An early effort in the study of Navy food service training was to collect data on similar programs in the other organizations. This survey revealed various innovative developments. One of the more surprising findings was a wide variation in the amount of laboratory or "hands-on" training as opposed to classroom-oriented instruction. The U.S. Navy emphasized the latter with slightly more than one-half hour in the laboratory for each hour in the classroom (0.59 to 1). Other services devoted as many as two hours in the laboratory for each hour in the classroom (2.3 to 1 in the U.S. Marines).

Since the U.S. Coast Guard was planning to revise their curriculum at the time of the survey, it was immediately recognized that an opportunity for a natural "field experiment" had arisen. The course changes included a newly revised total-elapsed-course time (from 18 to 16 weeks) and an increase in the actual amount of "hands-on" training from a then current level of 1.7 to a planned 2.5 to 1 ratio. An evaluation of these changes appeared to have considerable value for the Navy Training Study, since the revisions were designed to better prepare personnel for jobs and situations similar to those found in at least small to medium size Navy food service operations.

The potential of an evaluation of the Coast Guard changes was increased by the results of a search through the scientific literature (Stein, 1976).¹ In this comprehensive review, Stein found very little useful research that treats the subject of laboratory vs. classroom, or "hands-on" as opposed to lecture types of learning. For example, the computer files at the Defense Documentation Center fail to include even a single technical report on the laboratory/classroom question with respect to food service training. His study concludes that research to date has not investigated the relationship between training methodologies and work performance within performance-oriented occupations. In short, the "best" mix of practical application and classroom lecture training is not known, or if known, is not in the available published literature.

BACKGROUND

The U.S. Coast Guard Training Center at Petaluma, CA provides the basic (A-School) training for its Subsistence Specialist (SS) rating. This rating is comprised of the Coast Guard's food service personnel including the former Commissaryman and Steward ratings,

¹Stein, Earl S. The Lab-Lecture Ratio — unpublished manuscript, March 1976. Food Sciences Lab., US Army Natick Research and Development Command, Natick, MA.

which were merged to form the SS rating in January 1973. The Coast Guard does not offer formal advanced training courses for SS personnel in their career field. Thus, with the exception of a relatively small number of SS's who attend courses offered by other military services or by civilian schools, virtually all formal training in the Subsistence Specialist field is conducted at the Petaluma Center.

Petaluma began training Commissarymen in August 1971, offering at that time, a 16-week course. With the merger of the Commissaryman and Steward Ratings, the course was increased by two weeks to allow for the addition of wardroom training. The SS course continued as an 18-week program until November 1975, when it was shortened to 16 weeks.

For the most part, SS trainees come to Petaluma directly from their recruit training school. However, especially during periods of shortfall within the SS Rating, mess-cooks and others already assigned to fleet duty enroll in and are trained at the center. Typically, trainees are in paygrades E2 and E3, and, upon successful completion of the course, are considered qualified to perform the duties of the Subsistence Specialist Rating in the grade E4; i.e., Third Class Petty Officer.

Upon graduation, SS personnel are assigned to duty stations ashore and afloat. These assignments are typically to units where the size of the SS complement ranges from one to five persons, except at certain shore installations where the SS complement is larger. Thus, on the relatively smaller Coast Guard ships and stations, the new SS graduate is expected to work with minimal supervision in performing the basic tasks within his specialty field. The need to train for full performance upon entry to duty assignment is a factor of major importance in the design and implementation of the Petaluma SS Training Course.

The primary goal of the SS A-School is to graduate men sufficiently trained to handle the duties of a Petty Officer, Third Class in their rating. As pointed out above, the Coast Guard Subsistence Specialist is in many instances required to perform almost independently upon arrival at his first duty assignment. (In fact, isolated cases are reported where SS graduates have been assigned to ships on which the new graduate was the only Subsistence Specialist in the ship's personnel complement.)

Prior to September 1975, an increasing number of reports from District Inspection Teams and the fleet supervisors' field-evaluation forms indicated that many new graduates from the SS A-School were deficient in basic food preparation skills and knowledge. Reports also indicated graduates were generally unprepared to stand a watch upon arrival at their duty station. In short, feedback from the fleet to the training center strongly suggested that the A-School was not fully meeting its training objectives. After a period of examination and planning, a modified curriculum for the SS School was introduced in November 1975.

It was decided by the staff at the Training Center that the training area in which improvements would make the most direct and significant impact on SS performance was the practical application, "hands-on" phase. Thus, it was decided that additional "hands-on" experience should be added to the course, that it should precede the galley-training phase, and that it should consist of participation in a small-quantity food-service laboratory.

This addition of a "hands-on" laboratory experience to the SS course was the result of an intuitive decision by the training people. Recommendations from the field and the common sense judgement of the curriculum planners pointed toward increased practical application experience as the chief means for improving training. However, as pointed out previously, the research literature fails to confirm (or refute) the postulate that increased "hands-on" experience during training yields later gains in worker performance.

The laboratory program for SS trainees at Petaluma is scheduled to provide alternate days in the laboratory and classroom over a two week period. Each class is divided into port and starboard watches so that one watch is in the laboratory while the other watch is in the classroom. Typically, there are 11 to 13 trainees in each watch. With the exception of one day of laboratory orientation, each laboratory training day consists of 12 hours of small quantity food preparation and serving. Three meals are prepared and consumed by the students on each of the four days they are scheduled for "hands-on" food preparation in the laboratory. Critiques of the students' laboratory performance are conducted after each meal, providing immediate feedback to the cook-trainees.

Other changes in the SS course were made: 1) The number of course weeks was reduced to 16 from 18; 2) Scheduled classroom lecture instruction was reduced to 181 hours from 236 hours; 3) Mathematics instruction was increased to 18 hours from 6 hours; 4) Typing instruction was reduced to 8 hours from 16 hours; and 5) Recipe conversion instruction was increased to 13 hours from 6 hours.

The net result of the above changes in the SS course was to decrease course elapsed time 11%, to decrease classroom instruction time 23%, to increase the "hands-on" training time 21%, and to increase the total course instructional time, 30 hours (4%), to a total of 671 scheduled hours. (See Table 1 for a detailed comparison of the new and old SS courses.) The addition to the SS course of laboratory "hands-on" training and the reduction of classroom lecture time has increased the ratio of "hands-on"/classroom lecture training time from a ratio of 1.7:1 to a ratio of 2.7:1.

STUDY OBJECTIVES

The principal objective of this particular study was to evaluate the effect of increased "hands-on" training on the performance of SS school graduates in their initial duty assignments with the overriding purpose of making recommendations concerning the

TABLE 1

A Comparison of Two U.S. Coast Guard Subsistence Specialist Courses by Number of Hours
Allocated to Classroom Instruction and to Practical Experience ("Hands-on")

Week No.	OLD COURSE			NEW COURSE		
	Classroom Hours	"Hands-on" Hours	Week No.	Classroom Hours	"Hands-on" Hours	
1.	23	0	1.	34	0	
2.	24	0	2.	36.5	0	
3.	24	0	3.	26.5	0	
4.	25	0	4. Lab.	14	32	
5.	26	0	5. Lab.	16	24	
6.	30	0	6. Bakeshop	5	35	
7.	13	0	7. Bakeshop	5	35	
8. Galley	0	50	8. Mess-cook/ Sanitation	0	60	
9. Galley	0	50	9. Mess-cook/ Sanitation	0	60	
10. Galley	0	50	10. Galley	0	50	
11. Galley	0	50	11. Galley	0	50	
12. Bakeshop	0	30	12. Galley	0	50	
13. Bakeshop	0	30	13. Galley	0	50	
14. Mess-cook/ Sanitation	0	60	14. Wardroom (other)	7	44	

TABLE 1
A Comparison of Two U.S. Coast Guard Subsistence Specialist Courses by Number of Hours
Allocated to Classroom Instruction and to Practical Experience ("Hands-on") (cont'd)

Week No.	OLD COURSE			NEW COURSE		
	Classroom Hours	"Hands-on" Hours	Week No.	Classroom Hours	"Hands-on" Hours	
15. Mess-cook/ Sanitation	0	60	15.	27	0	
16. Wardroom	31	0	16.	10	0	
17. Wardroom	20	25	Total	181	490	
18.	20	0				
Total	236	405				

efficacy of "hands-on" training to the Navy. However, much of the data collected in this effort provide additional evidence concerning such topics as a comparison of the relative effectiveness of the new and old Coast Guard SS Training Programs, the effects of reducing the course length, the effects of training time increases and decreases in some of the skill areas discussed above, and the opinions of SS course students, graduates, and instructors concerning the new curriculum. This report will center on overall comparisons and evaluations, some of which may be of more interest to the Coast Guard than to the Navy. A subsequent report will focus on the relative efficiency of "hands-on" vs. classroom training (Symington, Nuss, and Stein, 1976).²

METHOD

The general method used in this effort involved two major approaches to gathering information about the changes in performance of SS school graduates occasioned by the increased "hands-on" training in the school curriculum. The first approach was to use personnel interview and survey techniques to gather opinions of trainees, instructors, and supervisors as to the changes in school and/or work performance. The other approach was to use quantitative data available and maintained at the school to evaluate the difference in student performance before the curriculum change and after the change.

In May 1976, surveys and interviews were conducted with 13 instructors at the Training Center and with 22 students in the class completing its final week of training. The surveys were administered in two groups, one session for the students, and the other for instructors. Within two days following the surveys, individual interviews were conducted with each respondent (survey and interview forms are included as Appendices A, B, C and D). Both instructor and student surveys and interviews were primarily oriented toward soliciting opinions concerning the efficiency of the SS course and suggestions for improvement. In addition, instructors were asked to compare the revised 16-week SS course to the old 18-week course.

Data were also collected from SS personnel at various ship and shore stations. Specifically, it was decided to seek information from each graduate of the February, March and April 1976 16-week classes, from his supervisor, and from a co-worker who had graduated from the old 18-week course. Because of the wide dispersion of these new graduates throughout the Coast Guard, practicality dictated the limitation of face to face

²Symington, Lawrence; Nuss, Eugene; and Stein, Earl. "Hands-on Experience in Military Food Service Training Programs", Technical Report (in press) 1976 Food Sciences Lab., US Army Natick Research and Development Command, Natick, MA.

contact to 21 of the 61 graduates from the three new classes. Each of these new graduates was surveyed and interviewed at his duty station concerning his perceptions of his training course. In addition, the most recent graduate of the old curriculum at each duty station was surveyed and interviewed about his training. (See Appendices E and F for the survey and interview forms for both old and new graduates.) Because some duty stations had no such old graduates, only 17 were actually included in the face to face sample. Each SS supervisor was also asked to compare the early working performance of his new and old graduates in both the survey and interview format (see Appendices G and H). Since some supervisors were on leave and others preferred not to rate their personnel after only a few months, the final face to face sample consisted of 16 supervisors.

It was decided to mail the survey portion of the survey-interview package in late May 1976 for completion by the 40 new graduates who were inaccessible for personal contact. Surveys were also sent to their supervisors and co-worker graduates of the old school. At the cut-off date of 30 June, the final totals for mailed surveys returned to Natick were 25 from new graduates (making a total of 46 new graduate surveys received from this sample and from the face to face sample), 12 from old graduates (making a total of 29 overall), and 26 from supervisors (making a total of 42 overall). This number of returns represented an excellent sample of the overall population of students, instructors, and supervisors that we were interested in.

Additional sources of data maintained by the school were also tapped for use in the evaluation. Student course critique forms were examined for indications of student acceptance of old and new course instructional methods. Grades given the students by their instructors, both for the entire course and for the individual instructional units, were extracted for the three classes experiencing the new curriculum (February, March, and April 1976) and for the three classes who had been in the old 18-week program (August, September, and October 1975).*

*The November, December 1975, and January 1976 classes experienced the 16-week course with a demonstration laboratory (not "hands-on" performance) and were not considered in this or any future data collection or analysis.

RESULTS AND DISCUSSION

EVALUATION OF THE REVISED SUBSISTENCE SPECIALIST COURSE

Overall Course Evaluations. Students, school instructors, and graduates of the new 16-week SS course were all asked to respond on a seven point Likert scale concerning their overall opinion of how well or poorly the course was succeeding in its training function. As can be seen from Table 2, the mean response from the three groups ranged between "slightly well" and "well" with only 5% of the students and 13% of the graduates maintaining that the training was done "poorly" or "slightly poorly". Of the three groups, the graduates were the least enthusiastic about the course.

The same three groups were queried concerning the overall length of the course. The instructors and students were in close agreement with about half of each group reporting course length as just about right, just over 30% saying it was too long, and between 15% and 18% claiming it was too short (see Table 3). Graduates, however, disagreed, with 70% feeling the course was too short and only 2% that it was too long. It seems likely that exposure to the actual SS job in galley might indicate the value of extensive training to the graduate.

Most of those suggesting that the course was too long proposed a course length of 14 weeks, 2 weeks shorter. Of those who felt the course too short, 60% (21 of 35 respondents) suggested a course length of 20 weeks.

Galley Phase. The galley phase of the new course curriculum was identical to the old in length, lasting four weeks (with the exception of the April 1976 class which spent eight weeks in the galley). Nonetheless, since the main thrust of the study concerned "hands-on" training, students, instructors, and graduates were all asked to rate how helpful the galley phase was in preparing SS's for their initial duty assignment. The data presented in Table 4 show the graduates, again, being the least enthusiastic group of the three; nevertheless, their mean rating of the galley phase fell just short of "very helpful". The students and instructors both rated the galley between "very helpful" and "extremely helpful", on the average. Supervisors (in their survey) were asked to comment on the helpfulness of the galley phase even though they might not have had direct exposure to the school. As can be seen from the mean rating in Table 4, they concurred with the other groups in feeling that such galley "hands-on" experience would be "very helpful". None of the 116 SS's surveyed evaluated the galley as "not helpful".

The students, instructors, and graduates were also asked to comment concerning the good and bad aspects of the galley phase (see Table 5). Some of the percentages in the table may not appear to be high. However, it should be kept in mind that they represent unprompted answers to open-ended questions where high frequencies of identical response are not expected. Well over half the students and graduates, and all of the

TABLE 2

**SS Evaluations of How Well or Poorly the New SS Course
Succeeded in its Training Function
(Responses presented in percentages)**

	1 Very Poorly	2 Poorly	3 Slightly Poorly	4 Neutral	5 Slightly Well	6 Well	7 Very Well	Mean Responses
Students (N=22)	0	0	5%	9%	18%	54%	14%	5.64
Graduates (N=46)	0	4%	9%	11%	30%	37%	9%	5.13
Instructors (N=13)	0	0	0	0	15%	70%	15%	6.00

TABLE 3

**Percentages of SS's Reporting that the New Course was
Too Short, Too Long, or Just About Right**

	Too Short	Just About Right	Too Long
Students (N=22)	18%	50%	32%
Graduates (N=46)	70%	28%	2%
Instructors (N=13)	15%	54%	31%

TABLE 4

Responses of SS Personnel to the Question: How Helpful is the School Galley Phase in Preparing Graduates for Their First Assignment?

	1 Not Helpful	2 Slightly Helpful	3 Helpful	4 Very Helpful	5 Extremely Helpful	Mean Responses
Students (N=22)	0	0	9%	59%	32%	4.23
Graduates (N=46)	0	9%	30%	28%	33%	3.85
Instructors (N=13)	0	0	0	46%	54%	4.54
Supervisors (N=35)	0	11%	17%	35%	37%	3.97

TABLE 5

**Percentage of SS's Volunteering Responses as to Which Aspects
of the Galley Phase were Good or Bad***

Aspects	GOOD		
	Students (N=22)	Graduates (N=21)	Instructors (N=13)
1. Working in real galley, "hands-on", OJT	64%	67%	100%
2. Helpfulness of instructors	41%	19%	—
3. Basic food preparation knowledge	9%	14%	23%
4. Exposure to large quantity cooking	14%	29%	—

Aspects	BAD		
	Students (N=22)	Graduates (N=21)	Instructors (N=13)
1. Large size of class	9%	48%	15%
2. Too much emphasis on garnishing	27%	19%	—
3. Instructors being too harsh about mistakes	18%	19%	8%
4. Instructors contradicting each other	18%	5%	8%
5. Instructors doing tasks themselves instead of allowing students to	9%	19%	—

* Respondents could give more than one answer.

instructors, felt that the "hands-on", training (OJT) nature of real galley experience was good. Related to this are two other aspects cited favorably, basic food preparation knowledge and an exposure to large quantity cooking. Particularly the students, but also the graduates, commented on the helpfulness of the galley instructors.

There were not many negative comments. The most frequent one concerned the size of the class in the galley. Note that more graduates made this comment than either of the other groups. Perhaps this was a function of slightly larger than desirable class sizes that occur periodically during the year, and are caused by the uneven influx of recruits. Students and graduates were concerned with the emphasis on garnishing, a feeling not shared by the instructors. There were also three concerns expressed about the instructors by some of the students and graduates: some instructors were perceived as being too harsh concerning mistakes, some instructors contradicted each other, and some performed cooking tasks themselves, rather than allowing the students to do so.

In response to a question concerning the length of the galley phase, more than half of the students (59%) seemed satisfied with the existing four weeks, while a majority of the graduates (75%) and of the instructors (55%) thought a time increase of a week or two would result in a better trained graduate. Nearly a quarter of the students (23%) concurred in preferring a longer galley phase.

Laboratory Phase. The three groups of SS's were asked similar questions about the laboratory phase of the revised course. Table 6 indicates that the instructors, students, and graduates were also positive about the helpfulness of the laboratory, although the ratings given by each group were lower than those given the galley phase. Supervisors in the field, again without direct exposure to the school, were also more negative than about the galley, but still gave an average evaluation between "helpful" and "very helpful".

Table 7 lists those aspects of the laboratory phase considered to be good or bad. Over half the instructors and graduates, and nearly half the students, perceived the laboratory as valuable in providing preparation for the galley phase of training. The next two responses concerning exposure to equipment and utensils, and introduction to food preparation would seem to be related to this preparation for the galley. Freedom from time pressure and individual attention of the instructors were also mentioned by all three groups of respondents. Two final aspects, exposure to garnishing and use of recipe cards, were noted primarily by instructors.

There were even fewer negative comments here than about the galley phase, with substantial numbers in each group saying there was nothing bad about the laboratory. Some graduates in particular were again concerned about the size of the classes and a few students expressed the desire to be in the laboratory five days in a row rather than every other day for two weeks.

TABLE 6

**Responses of SS Personnel to the Question: How Helpful
is the School Laboratory Phase in Preparing Graduates
for Their First Assignment?**

	1 Not Helpful	2 Slightly Helpful	3 Helpful	4 Very Helpful	5 Extremely Helpful	Mean Response
Students (N=22)	0	9%	36%	36%	19%	3.64
Graduates (N=46)	0	17%	22%	43%	17%	3.61
Instructors (N=13)	0	8%	8%	38%	46%	4.23
Supervisors (N=35)	3%	26%	35%	18%	18%	3.21

TABLE 7

**Percentage of SS's Volunteering Responses as to Which Aspects
of the Laboratory Phase were Good or Bad***

Aspects	GOOD		
	Students (N=22)	Graduates (N=21)	Instructors (N=13)
1. Preparation for Galley Phase	41%	52%	62%
2. Exposure to equipment/utensils	32%	43%	46%
3. Introduction to food preparation	41%	24%	38%
4. Freedom from time pressure	32%	19%	15%
5. Individual attention of instructor	9%	19%	31%
6. Exposure to garnishing	5%	5%	23%
7. Use of recipe cards	5%	—	23%

Aspects	BAD		
	Students (N=22)	Graduates (N=21)	Instructors (N=13)
1. Nothing	50%	43%	38%
2. Too many students	5%	33%	8%
3. One solid week instead of every other day for two weeks	14%	—	—

*Respondents could give more than one answer.

Half of the instructors, 73% of the students, and 72% of the graduates were pleased with the current length of the laboratory phase, with those advocating a change desiring, for the most part, an extra week or two.

Evaluations of Specific Training Categories. Graduates, students, and instructors were asked to rate the quality of training in 26 different categories on a seven point Likert scale ranging from 1 "very poorly" to 7 "very well". The mean responses to this survey question are presented in rank order in Table 8. The data from the table can be summarized in the following statements:

Instructors, graduates, and students agreed concerning the five categories where training was best. These subjects were the "best" five for each group and all but one of the 15 group means were 6.00 (well) or higher. In descending order over all three groups, the categories were: "keeping food service equipment clean and sanitary" (6.44), "keeping galley, wardroom, or mess deck area clean and sanitary" (6.42), "personal hygiene" (6.34), "using and converting Armed Forces Recipe Service cards" (6.27), and "presenting food on the serving line" (6.23). Note that the next category had a mean rating of 5.72, more than half a scale point away. Therefore, the conviction that training in these areas was best, was apparently a strong one.

Similar agreement occurred concerning the three areas where SS's felt graduates were trained least well: "assisting in maintaining officers' quarters" (3.32), "taking inventories" (3.59) and "computing requisition and cost record forms" (3.66).

A few other observations can be made about the data in Table 8. If the overall mean responses are split in half, one half containing the highest 13 means (all means greater than 5.00) and the other, the lowest 13 (all means less than 5.00) note that most of the categories dealing with food preparation are in the higher ranking half. The lower half contains such non-food preparation areas as storage, customer relations, menu planning, and records. It is also notable that the average ratings given by the students were a bit higher, particularly at the lower rated areas where only one category, "assisting in maintaining officers' quarters", had a mean rating below neutral. Finally, the general observation can be made that although the respondents felt that there were training problems in some areas, most of the mean responses about the training were on the positive side of neutral.

Data obtained from an interview question asking in which areas graduates were best and very well trained tell a similar story. As can be seen in Table 9, there was strong feeling among students, graduates, instructors, and supervisors that basic food preparation was the area in which training was rated the best or very good — many specifically citing the galley phase as the reason. Smaller, but still substantial, proportions of all four groups felt that graduates were also well trained in sanitation and baking; and, lastly, the training in recipe card conversion was praised by some of the respondents. Each of these four

TABLE 8

Ranked Mean SS Opinions of Quality of Various Categories of Training

Category	Mean of Means & Rank	Graduate Rank & Means	School Student Rank & Means	Instructors Rank & Means
Keeping food service equipment clean and sanitary	1 (6.44)	2 (6.54)	3.5 (6.32)	1 (6.46)
Keeping galley, wardroom or mess- deck area clean and sanitary	2 (6.42)	4 (6.43)	2 (6.45)	2 (6.38)
Personal hygiene	3 (6.34)	1 (6.67)	1 (6.50)	5 (5.85)
Using and converting Armed Forces Recipe Service Cards	4 (6.27)	5 (6.41)	3.5 (6.32)	3 (6.08)
Presenting food on the serving line	5 (6.23)	3 (6.46)	5 (6.23)	4 (6.00)
Handling basic vegetable cooking procedures	6 (5.72)	6 (5.70)	8 (5.68)	6 (5.77)
Using galley and pantry equipment	7 (5.63)	7 (5.67)	9 (5.59)	8 (5.62)
Baking simple bakery products	8 (5.49)	8 (5.52)	10 (5.50)	12 (5.46)
Displaying a proper "cover" for a wardroom table	9 (5.48)	10 (5.43)	7 (5.71)	13 (5.31)
Serving foods at proper temperatures	10 (5.47)	9 (5.46)	6 (5.73)	14 (5.23)
Controlling serving portions	11 (5.34)	12 (5.22)	12 (5.27)	10 (5.54)
Handling basic meat cooking procedures	12 (5.32)	11 (5.24)	15.5 (5.05)	7 (5.67)
Making soups	13 (5.15)	13 (4.91)	17 (5.00)	10 (5.54)
Making sauces & gravies	14 (4.96)	17 (4.66)	18 (4.86)	10 (5.54)
Making seating arrangements for officers	15 (4.89)	15 (4.77)	13.5 (5.14)	17.5 (4.77)
Short order cooking	16 (4.84)	14 (4.83)	20 (4.68)	15.5 (5.00)

TABLE 8 (Cont'd)

Ranked Mean SS Opinions of Quality of Various Categories of Training

Category	Mean of Means & Rank	Graduate Rank & Means	School Student Rank & Means	Instructors Rank & Means
Standing a duty watch	17 (4.81)	19.5 (4.39)	15.5 (5.05)	15.5 (5.00)
Handling, cutting, and thawing meat, seafood & poultry	18 (4.79)	18 (4.46)	13.5 (5.14)	17.5 (4.77)
Storing perishable and dry sub- sistence items	19 (4.64)	16 (4.70)	11 (5.36)	23 (3.85)
Conserving and using subsistence items to reduce waste	20 (4.43)	21 (4.30)	19 (4.77)	21 (4.23)
Customer relations	21 (4.36)	19.5 (4.39)	24.5 (4.14)	19 (4.54)
Preparing menus for a well balanced diet	22 (4.27)	22 (4.02)	21 (4.32)	20 (4.46)
Breaking out stock from bulk storerooms	23 (4.03)	23 (3.73)	22 (4.29)	22 (4.08)
Computing requisition and record forms	24 (3.66)	24 (3.22)	23 (4.15)	24 (3.46)
Taking inventories	25 (3.59)	26 (3.16)	24.5 (4.14)	25 (3.46)
Assisting in maintaining officers' quarters	26 (3.23)	25 (3.18)	26 (3.27)	

TABLE 9

**Percentage of SS's Volunteering Areas in Which Graduates were
Best or Very Well Trained and Least Well or Very Poorly Trained**

Area	Best or Very Well Trained			
	Students (N=22)	Graduates (N=21)	Instructors (N=13)	Supervisors (N=16)
1. Basic food preparation (galley)	55%	48%	77%	56%
2. Sanitation	23%	33%	23%	19%
3. Baking	45%	14%	15%	13%
4. Recipe card conversion	18%	10%	8%	13%

Area	Least Well or Very Poorly Trained			
	Students (N=22)	Graduates (N=21)	Instructors (N=13)	Supervisors (N=16)
1. Paper work	5%	57%	62%	19%
2. Wardroom	18%	19%	15%	—
3. Food preparation	—	—	—	25%

areas singled out in responses to this open-ended interview question were relatively highly rated in the survey question discussed above, although the rank orders are not identical.

The interview question concerning areas in which graduates were least well or very poorly trained agrees with the survey question in placing paperwork (or records) in this category, except as far as students' evaluations are concerned. The data in Table 9 indicate that the graduates and instructors felt much more strongly about this than did students. When interviewed, the students were in their first day of the paperwork/records week of instruction. Therefore, they may not have had adequate exposure to be able to render a judgement on the real value of the records section. A small percentage of students, graduates, and instructors also expressed concern about the quality of the wardroom training. The last line in the table indicates that one-quarter of the supervisors were concerned about the quality of food preparation training. So, although basic food preparation training was cited as being best or very good by many SS's in the interviews and surveys, some supervisors still remained dubious about the SS school in this respect.

Table 10 shows responses to another open-ended interview question concerning recommended additions to and deletions from the SS course. The most troublesome course area in this respect was, apparently, the paperwork phase which showed some division of opinion concerning quality as discussed above and which was cited here by some SS's for potential time increase in the course and by just a slightly smaller number for deletion or time reduction. The most universal opinion from all four groups in their interviews seemed to be that the one week of paperwork in the present course was inadequate both in quality and time. However, there was more of a disagreement concerning its utility for the graduate, with most SS's feeling that graduates wouldn't use any of the training for a long period following their initial assignment and that whatever had been learned would be mostly forgotten by then. On the other hand, some SS's felt that some graduates, particularly those assigned to small units, needed more extensive training because they would be doing paperwork upon assignment. One solution proposed was to have a special unit of instruction for those students anticipating such an assignment.

Students and graduates also expressed interest in adding meat cutting and preparation instruction and extending the training in baking. Some supervisors felt that more training in sanitation and personal hygiene should be accomplished in contradiction to the majority positive opinion of most SS's surveyed concerning the present amount of training in those categories.

In response to the question about deletions from the curriculum, there was less agreement among the groups (Table 10). The supervisors, as a whole, felt that they knew too little about the course specifics to comment, except concerning paperwork as noted above. Substantial portions of the students, graduates, and instructors agreed that too much time was spent in the mess-cooking phase of instruction. Most of these respondents recognized the need to fill this function in the school galley, but felt that shorter exposure

TABLE 10

Percentages of SS's Volunteering Areas that Should be Added to or Deleted from the SS School Curriculum

Area	Add or Increase Time			
	Students (N=22)	Graduates (N=21)	Instructors (N=13)	Supervisors (N=16)
1. Paperwork	5%	24%	15%	38%
2. Meat cutting and preparation	36%	14%	—	—
3. Baking	18%	14%	8%	—
4. Sanitation and hygiene	—	—	—	19%

Area	Delete or Decrease Time			
	Students (N=22)	Graduates (N=21)	Instructors (N=13)	Supervisors (N=16)
1. Wardroom	5%	24%	85%	—
2. Mess cooking	27%	38%	23%	—
3. Paperwork	—	10%	38%	19%
4. Garnishing	18%	10%	—	—
5. Mathematics	14%	14%	—	—

would be sufficient for training, and that some other source of messcooks should be used beyond that. Some students and graduates thought the wardroom phase should be deleted or reduced. In contrast, 85% of the instructors felt it should be cut back or deleted. Smaller groups of students and graduates also felt that there should be less emphasis on garnishing and mathematics.

Summary. Overall opinions of the current SS course was quite favorable. Most of the students and instructors surveyed, felt that the course length was just about right, while the majority of graduates felt that it was too short. The galley phase was rated between "very helpful" and "extremely helpful", on the average, with the "hands-on" nature of the galley and helpfulness of the instructors being cited as the main positive aspects. The laboratory phase was rated slightly lower in helpfulness than the galley with its main assets being perceived as preparation for the galley phase, an exposure to food equipment and utensils, and an introduction to food preparation. In general, the sanitation, personal hygiene, recipe card conversion, and food preparation areas were rated as those where training was best; while paperwork, supply and inventory, and maintaining officers' quarters were rated lowest. In contrast, one-quarter of the supervisors interviewed were concerned about the quality of food preparation training.

There was greater disagreement among the four groups surveyed and interviewed concerning additions to or deletions from the curriculum. Paperwork (records) was a particular bone of contention with many suggesting decreasing training. Their reasoning was that most graduates didn't use records training in the early portion of their initial assignment. Other respondents suggested more training in paperwork, particularly for those graduates assigned to smaller units. Some students and graduates felt that meat cutting and preparation and baking instruction should be added or increased, and that garnishing and mathematics should be decreased. Instructors felt quite strongly that the wardroom phase should be shortened or deleted with some graduates concurring.

COMPARATIVE EVALUATIONS OF THE OLD AND REVISED COURSES FOR SUBSISTENCE SPECIALISTS

Graduates' Evaluations. The graduates of the old and new SS courses could not validly compare the old and new courses. However, comparable interview and survey questions asked of each group indicate some interesting differences.

Recall that when asked in which aspect of the curriculum training was done best (Table 9), the most frequent response of the new graduates was "basic food preparation" (10 of 21 respondents, 48%). In response to the same question, the most frequent answer of the old graduates was "baking" with 8 of 17 (47%) responding. Only four old graduates (24%) volunteered the basic food preparation category. Percentage wise, then, old half as many old graduates cited basic food preparation as being best or very good. This finding strongly suggests that increased "hands-on" time in the new curriculum led to more positive evaluations of training in basic food preparation.

Responses to another interview question shed some light on another subject area which changed in the new curriculum, paperwork (records). The time spent in the paperwork phase was cut from 2 weeks in the old curriculum to one in the new. Twelve of twenty-one new graduates (57%) cited this phase in their evaluation of the least well, or very poorly trained subjects. However, 53% of the old graduates (9 of 17) rendered the same opinion concerning the quality of paperwork training in the old curriculum; the inference being that the deletion of the second week did not further weaken the quality of the paperwork training.

Additional evidence for a more positive opinion held by graduates of the revised SS program comes from the survey question in which graduates were asked to rate the quality of instruction in 26 categories. Table 11 presents these results. In 24 of 26 categories, new graduates gave higher ratings than old graduates, a difference which is statistically significant (sign test, 24 of 26, $p < .001$). Of particular interest are the six categories where there was a difference between new and old graduate means of at least one scale point. Five of these topics were specifically included in the curriculum changes. Three of these — "making soups", "short order cooking", and "making sauces and gravies" — are directly related to actual food preparation training which was increased by the addition of the laboratory instruction. Recipe card conversion training time was increased in the lecture portion of the new curriculum, and "hands-on" recipe conversion was also a feature of the laboratory. While total wardroom time was reduced, the hours of practical experience were increased, perhaps leading to the higher rating concerning "making seating arrangements for officers". The above differences indicate a genuinely higher level of satisfaction with training in the new course.

Instructor Comparisons of the Old and New Curricula. The 13 instructors surveyed were asked to give an overall rating on a seven-point Likert scale concerning how much better or worse the new school curriculum was than the old curriculum in preparing graduates. One instructor, who hadn't taught in the old school, didn't respond. Only one of the remaining twelve instructors (8%) rated the two curricula as about the same; the other eleven (92%) rated the new curriculum as at least slightly better (17% "slightly better", 42% "better", and 33% "much better"). The mean response fell directly at 6.00, "better".

The instructors were also asked to rate each of the 26 specific categories from the SS course in terms of whether the new curriculum was better, worse, or about the same (again on a seven-point Likert scale). The data, which are summarized in Table 12, show that throughout all 26 categories, there were only two individual responses maintaining that the new curriculum was "slightly worse", and no one who said that it was "worse" or "much worse". Note that all nine categories, with a mean of less than 5.00 ("slightly better") are ones which were not likely to be affected by the actual curriculum changes (with the possible exception of "standing a duty watch"). In addition, those categories

TABLE 11

Mean Ratings of 26 Categories by Old and New SS School Graduates

Category	New	Old	Differences
1. Making soups	4.91	3.43	1.48
2. Customer relations	4.39	3.12	1.27
3. Making seating arrangements for officers	4.77	3.62	1.15
4. Short order cooking	4.83	3.74	1.09
5. Making sauces and gravies	4.66	3.61	1.05
6. Using and converting Armed Forces Recipe Service Cards	6.41	5.39	1.02
7. Assisting in maintaining officers' quarters	3.18	2.23	0.95
8. Storing perishable and dry subsistence items	4.70	3.86	0.84
9. Displaying a proper "cover" for a wardroom table	5.43	4.63	0.80
10. Handling basic vegetable cooking procedures	5.70	5.11	0.59
11. Presenting food in the serving line	6.46	5.93	0.53
12. Handling, cutting, and thawing meat, seafood and poultry	4.46	3.96	0.50
13. Breaking out stock from bulk storerooms	3.73	3.25	0.48
14. Keeping food service equipment clean and sanitary	6.54	6.07	0.47
15. Using galley and pantry equipment	5.67	5.29	0.38
16. Keeping galley, wardroom or messdeck area clean and sanitary	6.43	6.07	0.36

TABLE 11

Mean Ratings of 26 Categories by Old and New SS School Graduates (cont'd)

Category	New	Old	Differences
17. Standing a duty watch	4.39	4.04	0.35
18. Taking inventories	3.16	2.82	0.34
19. Controlling serving portions	5.22	4.93	0.29
20. Personal hygiene	6.67	6.41	0.26
21. Serving foods at proper temperature	5.46	5.21	0.25
22. Baking simple bakery products	5.52	5.32	0.20
23. Conserving and using subsistence items to reduce waste	4.30	4.19	0.11
24. Completing requisition and cost forms	3.22	3.11	0.11
25. Handling basic meat cooking procedures	5.24	5.25	-0.01
26. Preparing menus for a well balanced diet	4.02	4.04	-0.02

TABLE 12

Rank Ordered Instructor Comparisons of Specific Training Categories in the
New and Old Curricula, Number of Responses

Rank Categories	New Curriculum Rated as:	3	4 About the Same	5 Slightly Better	6 Better	7 Much Better	Mean Responses
1. Using and converting Armed Forces Recipe Cards		1	0	1	3	7	6.25
2.5 Using galley and pantry equipment		0	2	1	5	4	5.92
2.5 Personal hygiene		0	3	0	4	5	5.92
4. Presenting food on the serving line		0	3	2	2	5	5.75
6.5 Handling basic meat cooking procedures		0	3	1	5	3	5.67
6.5 Handling basic vegetable cooking procedures		0	3	1	5	3	5.67
6.5 Keeping food service equipment clean and sanitary		0	4	1	2	5	5.67
6.5 Keeping wardroom, galley or messdeck area clean and sanitary		0	5	0	1	6	5.67
9. Displaying a proper "cover" for wardroom tables		0	5	0	2	5	5.58
11. Making soups		0	3	2	5	2	5.50

TABLE 12 (cont'd)

Rank Ordered Instructor Comparisons of Specific Training Categories in the
New and Old Curricula, Number of Responses

Rank Categories	New Curriculum Rated as:	3	4	5	6	7	Mean Responses
11. Making sauces and gravies		0	3	1	7	1	5.50
11. Serving foods at proper temperatures		0	4	1	4	3	5.50
13. Controlling serving portions		0	3	4	2	3	5.42
15. Handling, cutting, and thawing meat, seafood and poultry		1	4	2	3	2	5.08
15. Short order cooking		0	4	4	3	1	5.08
15. Preparing menus for a well balanced diet		0	5	3	2	2	5.08
17. Making seating arrangements for officers		0	6	1	2	2	5.00
18. Standing a duty watch		0	7	1	3	1	4.83
19. Completing requisition and cost records forms		0	7	1	1	2	4.82
20. Conserving and using subsistence items to reduce waste		0	7	2	2	1	4.75
21. Customer relations		0	7	1	2	1	4.73
22. Baking simple bakery products		0	7	2	3	0	4.67
23. Breaking out stock from bulk storerooms		0	9	0	2	1	4.58

TABLE 12 (cont'd)

Rank Ordered Instructor Comparisons of Specific Training Categories in the
New and Old Curricula, Number of Responses

Rank Categories	New Curriculum Rated as:	3 Slightly Worse	4 About the Same	5 Slightly Better	6 Better	7 Much Better	Mean Responses
24. Storing perishable and dry subsistence items		0	9	1	1	1	4.50
25. Assisting in maintaining officers' quarters		0	8	0	1	1	4.50
26. Taking inventories		0	9	0	2	0	4.36

*No responses at scalepoints 1 and 2, Much Worse and Worse.

where training was judged "better" (5.50 or higher) in the new curriculum, are all centered around food preparation, sanitation, and wardroom where the additional "hands-on" exposure should theoretically have been helpful. The general conclusion to be drawn from these responses, then, is that the new curriculum is viewed as being the same as, or better than, the old in each training category.

Student Comparisons of Instructional Methods. Upon completion of the SS course, students are asked by the school to evaluate the methods of instruction utilized during the course on a four category scale ranging from poor to excellent. In view of the methodological changes in the new course, i.e., less classroom instruction and more practical application, such a comparison of trainees' reactions to the methods of instruction is relevant to this study.

Ratings of methods from three classes which graduated from the old SS course were compared with the ratings of three classes which graduated from the new SS course in Table 13. While the ratings given by students graduating from the new curriculum were higher, the difference was not statistically significant ($X^2 = 2.45$, 3df, $p > 0.30$). Nevertheless, these data indicate some tendency of the students to favor the increase in "hands-on" practical application instruction.

Summary. In response to open-ended interview questions concerning the best aspects of the SS course curricula, almost half the new graduates volunteered the area of basic food preparation as compared to slightly less than a quarter of the old graduates. It seems likely that the increase in "hands-on" time in new curriculum contributed to this difference. The one-week decrease in the paperwork phase did not produce differences in the proportion of old and new graduates responding negatively about it. When the quality of training was rated in 26 specific categories, the new graduates gave higher ratings than old graduates in 24 of the 26.

All but one of the school instructors who responded, rated the new curriculum as or more favorably than the old curriculum overall. When the curricula were broken down into the 26 categories, the food preparation and sanitation areas in the new curriculum were rated more favorably than in the old curriculum.

Students who graduated from the new course rated the methods of instruction somewhat higher than graduates of the old course, although the difference was not statistically significant.

COMPARATIVE PERFORMANCE OF GRADUATES FROM NEW AND OLD COURSES

Final Grades of Students in the Old and New Courses. While a comparison of grades in the new and old courses might reflect many variables such as different quality of students, different grading philosophies, different test criteria, or changes in instructor

TABLE 13

**Ratings of Teaching Methods by Old and New
Course Students**

Method Ratings	Old Course Students N=42	New Course Graduates N=72
Excellent	5% (2) *	8% (6)
Good	31% (13)	40% (29)
Fair	45% (19)	40% (29)
Poor	19% (8)	11% (8)

*Number of responses.

expectations, such a comparison should also provide some indication of the relative effectiveness of the two courses.

The final grades (averages of the weekly grades received from the various instructors) were averaged for three classes in the old program (N=46) and three classes in the new program (N=63). The respective means, 85.5 and 85.7, were virtually identical, suggesting similarity of performance. This equality provides additional support for the new course in that the trainees performed as well — at least in the eyes of their instructors — in 16 weeks as did the previous trainees in 18 weeks.

Galley-Phase Performance of Students in the Old and New Courses. Galley phase training procedures were essentially the same for both courses. However, in the new curriculum, the galley phase was preceded by an additional five days of "hands-on" experience in the laboratory. As was noted earlier in this report, the major positive aspect of the laboratory was perceived to be preparation for the galley phase. Therefore, one might anticipate a higher level of performance in the galley phase of the new course.

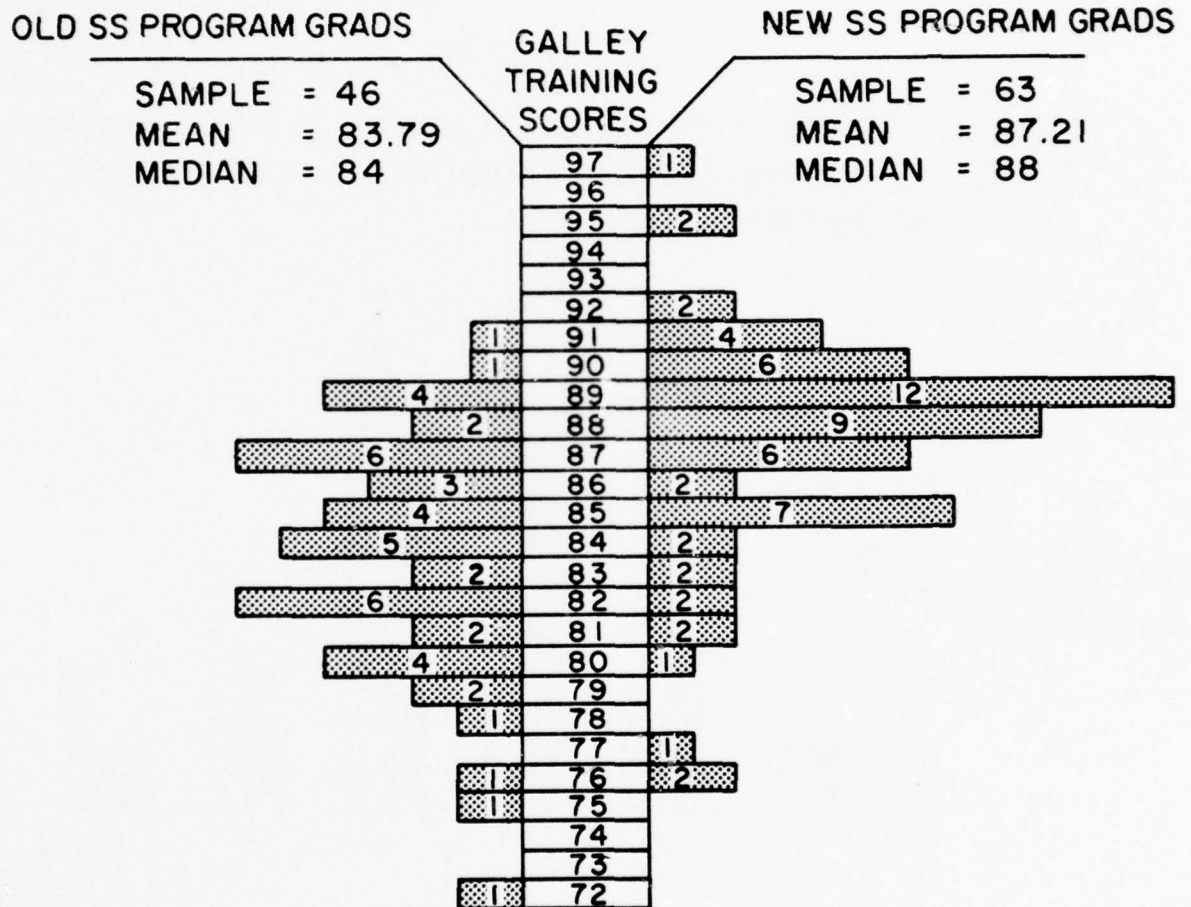
The available indices of performance in the galley phase were the grades for the four weeks spent in the galley for the same six classes (three old and three new) compared above. A comparison between mean galley phase scores of the old course and new course students is displayed graphically in Figure 1. Students in the new course had higher grades (87.21), on the average, than students in the old course (83.79). Moreover, this difference was statistically significant (Median Test: $X^2 = 15.84$, 1df, $p < .001$). Acknowledging the possibility of positive instructor bias, these data would still seem to indicate superior galley performance in the new course. Since the only relevant major observed difference between the new and old courses was the additional pre-galley laboratory experience, and since interview responses indicated the laboratory's usefulness in preparation for the galley, it can be further postulated that the improved performance in the galley was a function of the laboratory experience in the new curriculum.

Supervisor Ratings of Performance by Graduates of New and Old Courses. Supervisors were presented a survey question which showed a normal curve divided into six segments and told that a picture of all SS graduates might look like this, with most being average, only one being the best, and one the worst (see survey in Appendix). They were then asked to place their new school graduate in this picture by checking the section of the curve where they felt he belonged. They were asked to perform a similar task on a separate curve for their old graduate. Figure 2 illustrates the results. Note that 72% of the new graduates were rated above average as compared to only 47% of the old graduates. Just over half the old graduates (53%) were rated below average as compared to 28% of the new graduates. These differences, indicating a higher evaluation of graduates from the new course, were statistically significant ($X^2 = 4.61$, 1df, $p < 0.05$).

Responses to the second question in the supervisor interview provided related data in indicating whether new graduates needed more assistance than old graduates in

FIGURE 1

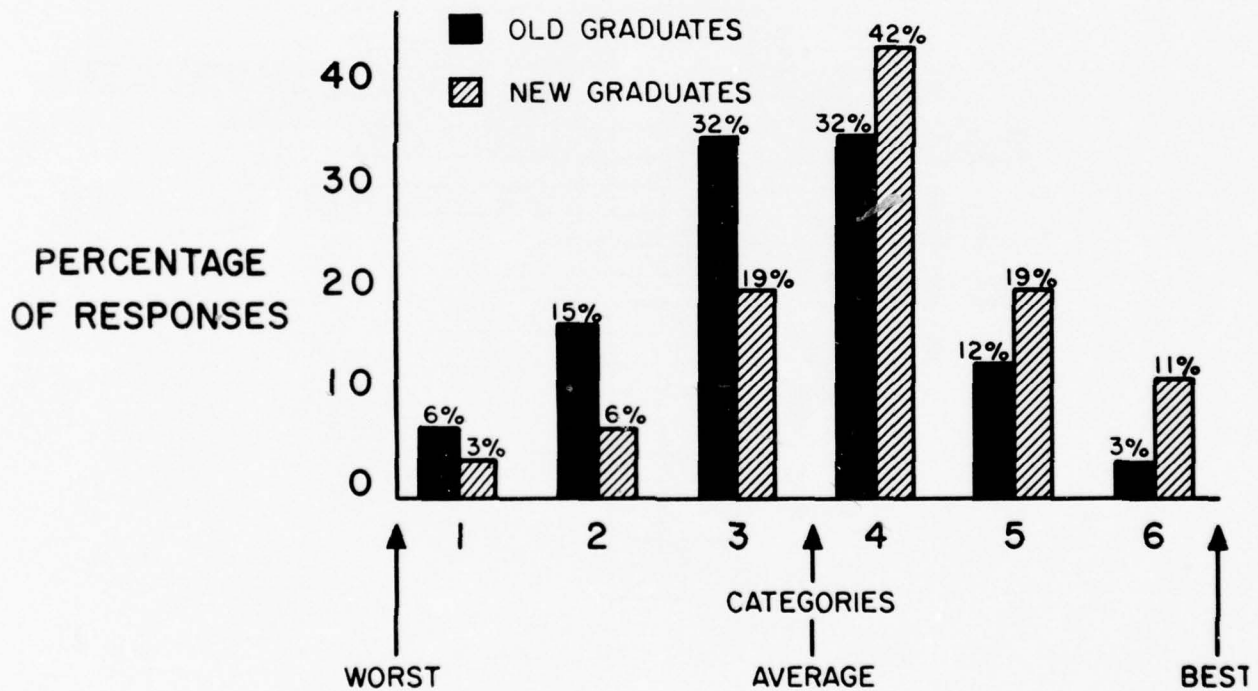
COMPARISON OF GALLEY TRAINING PERFORMANCE SCORES
FOR GRADUATES OF TWO SS TRAINING PROGRAMS



NOTE: NUMBERS WITHIN BARS IDENTIFY THE NUMBERS OF STUDENTS RECEIVING THE GIVEN FINAL SCORE.

FIGURE 2

SUPERVISOR COMPARISONS OF NEW AND OLD GRADUATES
TO ALL OTHER SS SCHOOL GRADUATES - PERCENTAGES OF
RESPONSE IN SIX CATEGORIES



performing their assigned SS tasks. Only one of the sixteen supervisors (6%) felt that his new graduate needed more assistance than his old graduate, seven (44%) felt that the amount of help needed was about the same, and eight (50%) felt that their new graduates needed less assistance than their old graduates. While these data are quite clear in suggesting that the new graduate needs no more, and maybe even less, assistance than the old graduate to perform his job during his first duty assignment, the supervisors retained some reservations about the new graduates' preparedness. When asked whether the new graduates were fully prepared to do their job when they came on board, only one-quarter of the supervisors felt they were fully qualified, one-quarter felt they needed some assistance, and another one-quarter suggested the graduates needed quite a bit of assistance. The area mentioned most frequently in which graduates needed assistance was in standing a duty watch on their own. In sum, then, while not fully satisfied with the preparedness of new graduates, all supervisors but one agreed that they needed equal or less assistance than old graduates upon arrival on board.

The supervisors were also asked to compare the performance of each of their new graduates to an old graduate in the 26 categories referred to elsewhere in this report. While the actual responses were on a seven-point Likert scale ranging from "new graduate, much better" to "new graduate, much worse", the data in Table 14 are collapsed to give one percentage for better, one for about the same, and one for worse. Note that the highest percentage of supervisors saying new graduates were worse was only 21% (in the category, "making soups"). In other words, there was strong agreement that the performance of new graduates was about the same or better. In six categories, including hygiene, sanitation, baking, and three food preparation categories, over half the supervisors said the new graduates were better. Many of the next highest ranking categories to these six are also related to food preparation, and therefore, to the curriculum changes. The lowest ranking categories (where new and old graduates were "about the same" again included menu preparation, storage, and paperwork categories. In sum, then, performance of the new graduates was rated better than old graduates in most categories. The categories where ratings approached "about the same" were, for the most part, those where the curriculum had not changed.

Summary. Overall performance in the SS course as reflected by the final course grade did not differ for old and new graduates. New graduates did, however, receive higher grades in the galley phase of the course, apparently reflecting the positive contribution of the additional "hands-on" laboratory experience. Supervisors rated new graduates higher than old when comparing the individuals to all other SS graduates not included in the sample. Supervisors also rated new graduates as better in performance than old graduates in many categories, with new and old graduate performance ratings approaching "about the same" for most categories where no curriculum change occurred.

TABLE 14

Percentages of Supervisors Rating New Graduates' Performance as Better,
About the Same or Worse Than an Old Graduate in 26 Categories

Rank	Category	1, 2, 3 New Graduate, Much Better, Better, or Slightly Better	4 About the Same	5, 6, 7 New Graduate, Slightly Worse, Worse, or Much Worse	Mean Responses
1.	Keeping food service equipment clean and sanitary	61%	26%	13%	3.18
2.	Baking simple bakery products	57%	30%	13%	3.22
3.	Personal hygiene	53%	39%	8%	3.29
4.	Short order cooking	57%	27%	16%	3.35
5.	Handling basic vegetable cooking procedures	55%	34%	11%	3.37
6.	Presenting food on the serving line	62%	24%	14%	3.38
7.	Using galley and pantry equipment	47%	39%	14%	3.42
8.	Using and converting Armed Forces Recipe Service Cards	50%	39%	11%	3.44
9.	Keeping galley, wardroom, or messdeck area clean and sanitary	45%	45%	10%	3.45
10.5	Handling basic meat cooking procedures	45%	37%	18%	3.55
10.5	Standing a duty watch	55%	26%	19%	3.55

TABLE 14 (cont'd)

Percentage of Supervisors Rating New Graduates' Performance as Better,
About the Same or Worse Than an Old Graduate in 26 Categories

Rank	Category	1, 2, 3 New Graduate, Much Better, Better, or Slightly Better	4 About the Same	5, 6, 7 New Graduate, Slightly Worse, Worse, or Much Worse	Mean Responses
12.5	Taking inventories	38%	56%	6%	3.56
12.5	Customer relations	44%	38%	18%	3.56
14.	Serving foods at proper temperatures	43%	46%	11%	3.57
15.	Controlling serving portions	45%	47%	8%	3.58
16.	Displaying a proper "cover" for a wardroom table	35%	56%	9%	3.59
17.5	Handling, cutting, and thawing meat, seafood, and poultry	37%	47%	16%	3.71
17.5	Conserving and using subsistence items to reduce waste	45%	37%	18%	3.71
19.	Making seating arrangements for officers	31%	63%	6%	3.72
20.5	Making soups	29%	50%	21%	3.76
20.5	Making sauces and gravies	42%	39%	19%	3.76
22.	Completing requisition and cost record forms	20%	77%	3%	3.80
23.5	Breaking out stock from bulk storerooms	31%	56%	13%	3.81
23.5	Assisting in maintaining officers' quarters	31%	56%	13%	3.81
25.	Storing perishable and dry subsistence items	25%	61%	14%	3.86
26.	Preparing menus for a well balanced diet	21%	67%	12%	3.88

GENERAL SUMMARY AND CONCLUSIONS

The data collected, when considered overall, provide strong evidence for the superiority of the revised SS course. On the average, the instructors rated the new curriculum as being better, the new course graduates gave their training higher ratings than the old course graduates, and the supervisors rated the performance of the new course graduates higher than that of the old course graduates.

One major change in the curriculum was the reduction in course length from 18 to 16 weeks. While some new course graduates felt it could be longer, most students and instructors felt it was just about the right length at 16 weeks. Certainly the occasionally equal and mostly higher training quality and performance ratings given to the new course and its graduates, respectively, provide strong evidence that the time reduction had no negative effect on graduates' course or fleet performance.

Another major change concerned the addition of "hands-on", practical application time, mostly represented in the laboratory phase of the new course. Again, the data overwhelmingly support this change. The galley phase was rated as the best aspect of training mainly because of its "hands-on" orientation. The laboratory was specifically cited for its usefulness in preparing students for the galley. Students in the new course with the benefit of this laboratory preparation received higher grades in the galley phase than students in the old course. Twice as many new course graduates as old course graduates listed basic food preparation training as the best quality training. New graduates rated the quality of training in food preparation areas higher than did old graduates, and instructors concurred. Some supervisors did express concern about the training of the new graduates in basic food preparation; but most of the evidence reported here supports the conclusion that the graduate of the new course is well trained in this respect and, moreover, better trained than the graduate of the old course.

In the new curriculum, the sanitation, personal hygiene, recipe card conversion, and food preparation areas were generally rated as those where training was best. Supply and inventory, maintaining officers' quarters, and paperwork were rated lowest. The latter area, paperwork, was another area which changed in the new curriculum, being reduced from two weeks to one. Apparently, the paperwork training was universally perceived as remaining equally poor after the time reduction. Considerable disagreement was evidenced concerning the importance of this area, with many suggesting decreasing the training since most graduates don't use it in the early portion of their assignments, and others suggesting more training, particularly for those assigned to smaller units. One proposed solution was a separate unit of instruction in paperwork for only these latter students.

In summary, then, while some negative opinions of the new SS course were put forward, most of the evidence collected was supportive of the increased quality of the course itself — particularly the added "hands-on" aspects — and of the higher level of performance demonstrated by new course graduates early in the first duty assignment.

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APPENDIX A

A SURVEY FORM FOR SS SCHOOL
INSTRUCTOR EVALUATION OF TRAINING

SS INSTRUCTOR EVALUATION OF TRAINING

Thank you

* * * * *

1	2	3	4	5	6	7				
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well				
Category				How well prepared?						
1. Baking simple bakery products				1	2	3	4	5	6	7
2. Using galley and pantry equipment				1	2	3	4	5	6	7
3. Handling basic meat cooking procedures				1	2	3	4	5	6	7
4. Handling basic vegetable cooking procedures				1	2	3	4	5	6	7
5. Making soups				1	2	3	4	5	6	7
6. Making sauces and gravies				1	2	3	4	5	6	7
7. Using and converting Armed Forces Recipe Service Cards				1	2	3	4	5	6	7
8. Standing a duty watch				1	2	3	4	5	6	7
9. Handling, cutting, and thawing meat, seafood, and poultry				1	2	3	4	5	6	7
10. Short order cooking				1	2	3	4	5	6	7
11. Storing perishable and dry subsistence items				1	2	3	4	5	6	7
12. Conserving and using subsistence items to reduce waste				1	2	3	4	5	6	7
13. Preparing menus for a well balanced diet				1	2	3	4	5	6	7
14. Displaying a proper "cover" for a wardroom table				1	2	3	4	5	6	7
15. Taking inventories				1	2	3	4	5	6	7
16. Breaking out stock from bulk storerooms				1	2	3	4	5	6	7
17. Completing requisition and cost record forms				1	2	3	4	5	6	7
18. Serving foods at proper temperatures				1	2	3	4	5	6	7
19. Controlling serving portions				1	2	3	4	5	6	7
20. Presenting food on the serving line				1	2	3	4	5	6	7
21. Personal hygiene				1	2	3	4	5	6	7

1	2	3	4	5	6	7				
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well				
Category				How well prepared?						
22. Keeping food service equipment clean and sanitary				1	2	3	4	5	6	7
23. Keeping galley, wardroom or mess deck area clean and sanitary				1	2	3	4	5	6	7
24. Assisting in maintaining officer's quarters				1	2	3	4	5	6	7
25. Making seating arrangements for officers				1	2	3	4	5	6	7
26. Customer relations				1	2	3	4	5	6	7

D. For the same categories listed above, we would like you to tell us whether you feel that the current SS School curriculum is better, worse, or about the same as the old curriculum (the 18 week course before November 1975, before the laboratory was introduced in any form). For this please use the new scale below — **note that "about the same" is in the middle of the scale with "better" and "worse" responses on either side.**

1	2	3	4	5	6	7
Much Worse	Worse	Slightly Worse	About the Same	Slightly Better	Better	Much Better

THE NEW CURRICULUM IS:

Better or Worse?

1. Baking simple bakery products	1	2	3	4	5	6	7
2. Using galley and pantry equipment	1	2	3	4	5	6	7
3. Handling basic meat cooking procedures	1	2	3	4	5	6	7
4. Handling basic vegetable cooking procedures	1	2	3	4	5	6	7
5. Making soups	1	2	3	4	5	6	7
6. Making sauces and gravies	1	2	3	4	5	6	7
7. Using and converting Armed Forces Recipe Service Cards	1	2	3	4	5	6	7
8. Standing a duty watch	1	2	3	4	5	6	7

1	2	3	4	5	6	7
Much Worse	Worse	Slightly Worse	About the Same	Slightly Better	Better	Much Better

THE NEW CURRICULUM IS:

Better or Worse?

9. Handling, cutting, and thawing meat, seafood, and poultry	1	2	3	4	5	6	7
10. Short order cooking	1	2	3	4	5	6	7
11. Storing perishable and dry subsistence items	1	2	3	4	5	6	7
12. Conserving and using subsistence items to reduce waste	1	2	3	4	5	6	7
13. Preparing menus for a well balanced diet	1	2	3	4	5	6	7
14. Displaying a proper "cover" for wardroom tables	1	2	3	4	5	6	7
15. Taking inventories	1	2	3	4	5	6	7
16. Breaking out stock from bulk storerooms	1	2	3	4	5	6	7
17. Completing requisition and cost record forms	1	2	3	4	5	6	7
18. Serving foods at proper temperatures	1	2	3	4	5	6	7
19. Controlling serving portions	1	2	3	4	5	6	7
20. Presenting food on the serving line	1	2	3	4	5	6	7
21. Personal hygiene	1	2	3	4	5	6	7
22. Keeping food service equipment clean and sanitary	1	2	3	4	5	6	7
23. Keeping wardroom, galley or mess deck area clean and sanitary	1	2	3	4	5	6	7
24. Assisting in maintaining officer's quarters	1	2	3	4	5	6	7
25. Making seating arrangements for officers	1	2	3	4	5	6	7
26. Customer relations	1	2	3	4	5	6	7

- E. In the current SS School curriculum there are two types of practical, "hands on" cooking experience: in the regular galley where meals are actually served to school students, and in a laboratory which comes before the galley phase. We are interested in how helpful you feel these two different types of "hands on" training are in preparing graduates for their first SS assignment. Please check one response for **each type of training**.

1. Laboratory:

<u>Not</u> Helpful	<u>Slightly</u> Helpful	<u>Helpful</u>	<u>Very</u> Helpful	<u>Extremely</u> Helpful
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2. Actual Galley:

<u>Not</u> Helpful	<u>Slightly</u> Helpful	<u>Helpful</u>	<u>Very</u> Helpful	<u>Extremely</u> Helpful
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- F. Overall, what is your opinion of how well or poorly graduates are trained by the SS School course?

<u>Very</u> Poorly	<u>Poorly</u>	<u>Slightly</u> Poorly	<u>Neutral</u>	<u>Slightly</u> Well	<u>Well</u>	<u>Very</u> Well
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- G. You have already told us how well you feel graduates are trained in several areas. For a few categories we would like your opinion of **how much** training they receive from the SS School. Keep in mind the difference between the Laboratory and the actual galley. Note that "**Just About Right**" is in the **middle** of the scale, "**Much too Little**" and "**Much too Much**" at the extremes. Please check one alternative for each category.

Category	Much too Little	Too Little	A bit too Little	Just About Right	A bit too Much	Too Much	Much too Much
1. Cooking laboratory	_____	_____	_____	_____	_____	_____	_____
2. Cooking in galley	_____	_____	_____	_____	_____	_____	_____
3. Baking	_____	_____	_____	_____	_____	_____	_____
4. Wardroom training	_____	_____	_____	_____	_____	_____	_____
5. Record keeping	_____	_____	_____	_____	_____	_____	_____
6. Mathematics and recipe conversion	_____	_____	_____	_____	_____	_____	_____

H. What is your opinion of **how long or short** the current SS School course is?

Much too Short	Too Short	A bit too Short	Just About Right	A bit too Long	Too Long	Much too Long
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I. Overall, how much better or worse is the current school curriculum than the old curriculum in preparing graduates?

Much Worse	Worse	Slightly Worse	About the Same	Slightly Better	Better	Much Better
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J. If the SS course were split into two categories, the lecture portion and the "hands on" portion, which of the two do you feel is more important in preparing graduates for their first assignment?

Lecture much more important	Lecture more important	Lecture slightly more important	Both are equally important	Hands on slightly more important	Hands on more important	Hands on much more important
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K. We are interested in how strongly you agree or disagree with the two following statements?

1. You could cut the **amount of lecture time** in the current SS course by two weeks, and still produce a well prepared graduate.

Disagree strongly	Disagree	Disagree slightly	Neither agree nor disagree	Agree slightly	Agree	Agree strongly
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2. You could cut the **amount of "hands on" time** in the current SS course by two weeks, and still produce a well prepared graduate.

Disagree strongly	Disagree	Disagree slightly	Neither agree nor disagree	Agree slightly	Agree	Agree strongly
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APPENDIX B

A SURVEY FORM FOR SS SCHOOL
STUDENT EVALUATION OF TRAINING

NATICK RESEARCH AND DEVELOPMENT COMMAND

SS SCHOOL STUDENT EVALUATION OF TRAINING

The Natick Research and Development Command is cooperating with the U.S. Coast Guard Training and Education Division in evaluating Subsistence Specialist School Training Programs. **WE NEED YOUR HELP.** Please give us the benefit of your experience by completing the following survey. Remember, you can help **only** if you tell us how you **really** feel about your training — so do the best you can to be accurate. Do **not** sign your name on the survey. Your opinions will be kept in strict confidence.

Thank you

A. Before entering the Coast Guard, did you have any food service training?

Yes No

1. In a formal school

2. OJT (on-the-job training)

B. We realize that you have not yet started working in your rating. However, we would like you to indicate how well or poorly you feel **you** are being prepared to assume the duties of a PO3 in your rate using the following scale:

1	2	3	4	5	6	7
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well

For each of the categories listed below, please circle the number which best describes your opinion of how well or poorly you were trained in that category.

EXAMPLE: You feel that you were well trained in sharpening knives; you would circle 6 next to knife sharpening. You feel that you were slightly poorly trained in preparing chili; you would circle 3 next to preparing chili.

1. Knife sharpening	1	2	3	4	5	(6)	7
2. Preparing chili	1	2	(3)	4	5	6	7

* * * * *

1	2	3	4	5	6	7				
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well				
Category				How well prepared?						
1. Baking simple bakery products				1	2	3	4	5	6	7
2. Using galley and pantry equipment				1	2	3	4	5	6	7
3. Handling basic meat cooking procedures				1	2	3	4	5	6	7
4. Handling basic vegetable cooking procedures				1	2	3	4	5	6	7
5. Making soups				1	2	3	4	5	6	7
6. Making sauces and gravies				1	2	3	4	5	6	7
7. Using and converting Armed Forces Recipe Service Cards				1	2	3	4	5	6	7
8. Standing a duty watch				1	2	3	4	5	6	7
9. Handling, cutting, and thawing meat, seafood, and poultry				1	2	3	4	5	6	7
10. Short order cooking				1	2	3	4	5	6	7
11. Storing perishable and dry subsistence items				1	2	3	4	5	6	7
12. Conserving and using subsistence items to reduce waste				1	2	3	4	5	6	7
13. Preparing menus for a well balanced diet				1	2	3	4	5	6	7
14. Displaying a proper "cover" for a wardroom table				1	2	3	4	5	6	7
15. Taking inventories				1	2	3	4	5	6	7
16. Breaking out stock from bulk storerooms				1	2	3	4	5	6	7
17. Completing requisition and cost record forms				1	2	3	4	5	6	7
18. Serving foods at proper temperatures				1	2	3	4	5	6	7
19. Controlling serving portions				1	2	3	4	5	6	7
20. Presenting food on the serving line				1	2	3	4	5	6	7
21. Personal hygiene				1	2	3	4	5	6	7

1	2	3	4	5	6	7
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well

Category

How well prepared?

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22. Keeping food service equipment clean and sanitary | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. Keeping galley, wardroom or mess deck area clean and sanitary | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. Assisting in maintaining officer's quarters | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. Making seating arrangements for officers | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. Customer relations | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

C. In the current SS School curriculum there are two types of practical, "hands on" cooking experience: in the regular galley where meals are actually served to school students, and in a laboratory which comes before the galley phase. We are interested in how helpful **you** feel these two different types of "hands on" training were in preparing you for your first SS assignment. Please check one response for **each type of training**.

1. Laboratory

Don't know, they had no laboratory when I took the SS course

Not Helpful

Slightly Helpful

Helpful

Very Helpful

Extremely Helpful

2. Actual Galley

Not Helpful

Slightly Helpful

Helpful

Very Helpful

Extremely Helpful

D. Overall, what is your opinion of how well or poorly you were trained by the SS School course?

Very Poorly

Poorly

Slightly Poorly

Neutral

Slightly Well

Well

Very Well

- E. You have already told us how well you feel you were trained in several areas. For a few categories we would like your opinion of how much training you received from the SS School. Keep in mind the difference between the laboratory and the actual galley. NOTE THAT "JUST ABOUT RIGHT" IS IN THE MIDDLE OF THE SCALE, "much too little" at one extreme and "much too much" at the other extreme. Please check one alternative for each category.

Category	Much too Little	Too Little	A bit too Little	Just About Right	A bit too Much	Too Much	Much Too Much
1. Cooking laboratory	—	—	—	—	—	—	—
2. Cooking in galley	—	—	—	—	—	—	—
3. Baking	—	—	—	—	—	—	—
4. Wardroom training	—	—	—	—	—	—	—
5. Record keeping	—	—	—	—	—	—	—
6. Mathematics and recipe conversion	—	—	—	—	—	—	—

- F. What is your opinion of how long or short your entire SS School course was?

Much too Short	Too Short	A bit too Short	Just About Right	A bit too Long	Too Long	Much too Long
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If you said short or long above, how long should the course be?

— weeks

- G. If your SS course were split into two categories, the lecture portion and the "hands on" portion, which of the two do you feel was more important in preparing you for your first SS assignment?

Lecture much more important	Lecture more important	Lecture slightly more important	Both are equally important	Hands on slightly more important	Hands on more important	Hands on much more important
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H. We are interested in how strongly you agree or disagree with the two following statements.

1. You could cut the amount of lecture time **you** had in **your** SS course by two weeks, and still produce a well prepared graduate.

Disagree
strongly

Disagree

Disagree
slightly

Neither
agree nor
disagree

Agree
slightly

Agree

Agree
strongly

2. You could cut the amount of "hands on" time **you** had in **your** SS course by two weeks and still produce a well prepared graduate.

Disagree
strongly

Disagree

Disagree
slightly

Neither
agree nor
disagree

Agree
slightly

Agree

Agree
strongly

APPENDIX C

INTERVIEW QUESTIONS FOR SS SCHOOL
INSTRUCTORS

NATICK RESEARCH AND DEVELOPMENT COMMAND

SS School Instructor Interview

1. (If **other than just right** in H). In your survey you said that the entire SS course should be _____. How much **shorter/longer** should it be?
2. In the survey (E2) you said that the galley phase in the school is ____ in preparing graduates for their first assignment. What is the main reason you feel it is ____? Any other reasons?
3. Are there any aspects of the galley phase which are **good/bad**? (The opposite direction from the answer to 2)
4. (If **other than just right** in G2) Why do you say that there is _____ time in the galley phase? How long should it be?
5. In the survey (E1) you said that the laboratory phase in the school is ____ in preparing graduates for their first assignment. What is the main reason you feel it is ____? Any other reasons?
6. Are there any aspects of the laboratory phase which are **good/bad**? (The opposite direction from the answer to 5)
7. (If **other than just right** in G1) Why do you say that there is _____ time in the laboratory phase? How long should it be?
8. In what single area do you think the SS School **best** prepares graduates? Any other areas where the school preparation is very good?
9. In what single area do you think the SS School prepares graduates **least well**? Any other areas where the school does not prepare them well?
10. Is there any area you can think of that should be **added** to or taught more in the SS course? Any others?
11. Is there any area you can think of that should be **deleted** from or taught less in the SS course? Any others?

APPENDIX D

INTERVIEW QUESTIONS FOR SS SCHOOL
STUDENTS

SS School Student Interview

1. (If **yes** in **A**). I see you've had food service training before you came into the Coast Guard. Where was that? What type of training?
2. In the survey (C2) you said that the galley phase was _____ in preparing you for your first SS assignment. What is the **main** reason you feel it was _____?

Any other reasons?
3. Were there any aspects of the galley phase that were **good/bad**? (The opposite direction from the answer to 2).
4. (If **other than just right** in **E2**). Why do you say that there was _____ time in the galley phase?

How long should it be?
5. In the survey (C1) you said that the laboratory phase was _____ in preparing you for your first assignment. What is the **main** reason you feel it was _____?

Any other reasons?
6. Were there any aspects of the laboratory phase that were **good/bad**? (The opposite direction from the answer to 5).
7. (If **other than just right** in **E1**). Why do you say that there was _____ time in the laboratory phase?

How long should it be?
8. In what single area do you think the SS School **best** prepared you?

Any other areas where the school preparation was very good?
9. In what single area do you think the SS School prepared you least well?

Any other areas where the school did not prepare you well?
10. Is there any area you can think of that should be **added** to or taught more in the SS course? Others?
11. Is there any area you can think of that should be **deleted** from or taught less in the SS course?

Any others?
12. What single thing stands out in your mind as being the most helpful thing that happened to you here at the SS School?

APPENDIX E

A SURVEY FORM FOR ON DUTY SS SCHOOL
GRADUATES' EVALUATION OF TRAINING

NATICK RESEARCH AND DEVELOPMENT COMMAND
ON DUTY SS EVALUATION OF TRAINING

The Natick Research and Development Command is cooperating with the U.S. Coast Guard Training and Education Division in evaluating Subsistence Specialist School Training Programs. **WE NEED YOUR HELP.** Please give us the benefit of your experience by completing the following survey. Remember, you can help **only** if you tell us how you **really** feel about **your** training — so do the best you can to be accurate. Do **not** sign your name on the survey. Your opinions will be kept in strict confidence.

Thank you

A. Date of graduation from SS School _____

B. Before entering the Coast Guard, did you have any food service training?

Yes No

1. In a formal school _____

2. OJT (on-the-job training) _____

C. Keeping in mind that the primary goal of a Class A School is to graduate men sufficiently trained to handle the duties of a PO3 in their rating, indicate how well or poorly **your** SS School training succeeded in **your** case using the following scale:

1	2	3	4	5	6	7
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well

For each of the categories listed below, please circle the number which best describes your opinion of how well or poorly you were trained in that category.

EXAMPLE: You feel that you were well trained in sharpening knives; you would circle 6 next to knife sharpening. You feel that you were slightly poorly trained in preparing chili; you would circle 3 next to preparing chili.

- | | |
|---------------------|------------------------------|
| 1. Knife sharpening | 1 2 3 4 5 6 7 |
| 2. Preparing chili | 1 2 3 4 5 6 7 |

1	2	3	4	5	6	7				
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well				
Category				How well prepared?						
1. Baking simple bakery products				1	2	3	4	5	6	7
2. Using galley and pantry equipment				1	2	3	4	5	6	7
3. Handling basic meat cooking procedures				1	2	3	4	5	6	7
4. Handling basic vegetable cooking procedures				1	2	3	4	5	6	7
5. Making soups				1	2	3	4	5	6	7
6. Making sauces and gravies				1	2	3	4	5	6	7
7. Using and converting Armed Forces Recipe Service Cards				1	2	3	4	5	6	7
8. Standing a duty watch				1	2	3	4	5	6	7
9. Handling, cutting, and thawing meat, seafood, and poultry				1	2	3	4	5	6	7
10. Short order cooking				1	2	3	4	5	6	7
11. Storing perishable and dry subsistence items				1	2	3	4	5	6	7
12. Conserving and using subsistence items to reduce waste				1	2	3	4	5	6	7
13. Preparing menus for a well balanced diet				1	2	3	4	5	6	7
14. Displaying a proper "cover" for a wardroom table				1	2	3	4	5	6	7
15. Taking inventories				1	2	3	4	5	6	7
16. Breaking out stock from bulk storerooms				1	2	3	4	5	6	7
17. Completing requisition and cost record forms				1	2	3	4	5	6	7
18. Serving foods at proper temperatures				1	2	3	4	5	6	7
19. Controlling serving portions				1	2	3	4	5	6	7
20. Presenting food on the serving line				1	2	3	4	5	6	7
21. Personal hygiene				1	2	3	4	5	6	7

1	2	3	4	5	6	7
Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well

Category

How well prepared?

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22. Keeping food service equipment clean and sanitary | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. Keeping galley, wardroom or mess deck area clean and sanitary | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. Assisting in maintaining officer's quarters | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. Making seating arrangements for officers | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. Customer relations | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

D. In the current SS School curriculum there are two types of practical, "hands on" cooking experience: in the regular galley where meals are actually served to school students, and in a laboratory which comes before the galley phase. We are interested in how helpful **you** feel these two different types of "hands on" training were in preparing you for your first SS assignment. Please check one response for **each type of training**.

1. Laboratory

Don't know, they had no laboratory when I took the SS course	Not Helpful	Slightly Helpful	Helpful	Very Helpful	Extremely Helpful
--	----------------	---------------------	---------	-----------------	----------------------

2. Actual Galley

Not Helpful	Slightly Helpful	Helpful	Very Helpful	Extremely Helpful
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E. Overall, what is your opinion of how well or poorly you were trained by the SS School course?

Very Poorly	Poorly	Slightly Poorly	Neutral	Slightly Well	Well	Very Well
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- F. You have already told us how well you feel you were trained in several areas. For a few categories we would like your opinion of how much training you received from the SS School. Keep in mind the difference between the laboratory and the actual galley. NOTE THAT "JUST ABOUT RIGHT" IS IN THE MIDDLE OF THE SCALE, "much too little" at one extreme and "much too much" at the other extreme. Please check one alternative for each category.

Category	Much too Little	Too Little	A bit too Little	Just About Right	A bit too Much	Too Much	Much too Much
1. Cooking laboratory	_____	_____	_____	_____	_____	_____	_____
2. Cooking in galley	_____	_____	_____	_____	_____	_____	_____
3. Baking	_____	_____	_____	_____	_____	_____	_____
4. Wardroom training	_____	_____	_____	_____	_____	_____	_____
5. Record keeping	_____	_____	_____	_____	_____	_____	_____
6. Mathematics and recipe conversion	_____	_____	_____	_____	_____	_____	_____

- G. What is your opinion of how long or short your entire SS School course was?

Much too Short	Too Short	A bit too Short	Just About Right	A bit too Long	Too Long	Much too Long
----------------------	--------------	-----------------------	------------------------	----------------------	-------------	---------------------

If you said short or long above, how long should the course be? _____ weeks

- H. If your SS course were split into two categories, the lecture portion and the "hands on" portion, which of the two do you feel was more important in preparing you for your first SS assignment?

Lecture much more important	Lecture more important	Lecture slightly more important	Both are equally important	Hands on slightly more important	Hands on more important	Hands on much more important
-----------------------------------	------------------------------	--	-------------------------------------	---	-------------------------------	------------------------------------

- I. We are interested in how strongly you agree or disagree with the two following statements.

1. You could cut the amount of lecture time you had in your SS course by two weeks, and still produce a well prepared graduate.

<u>Disagree</u> strongly	<u>Disagree</u>	<u>Disagree</u> slightly	<u>Neither</u> agree nor disagree	<u>Agree</u> slightly	<u>Agree</u>	<u>Agree</u> strongly
-----------------------------	-----------------	-----------------------------	---	--------------------------	--------------	--------------------------

2. You could cut the amount of "hands on" time you had in your SS course by two weeks and still produce a well prepared graduate.

<u>Disagree</u> strongly	<u>Disagree</u>	<u>Disagree</u> slightly	<u>Neither</u> agree nor disagree	<u>Agree</u> slightly	<u>Agree</u>	<u>Agree</u> strongly
-----------------------------	-----------------	-----------------------------	---	--------------------------	--------------	--------------------------

- J. We would like to know how satisfied or dissatisfied you are with the following aspects of your Coast Guard food service duty assignment. Please check one answer for each category.

Category	Very satis- fied	Satis- fied	Slightly satis- fied	Neu- tral	Slightly dissat- isfied	Dis- satis- fied	Very dissat- isfied
1. Your supervision	_____	_____	_____	_____	_____	_____	_____
2. Attitude of the customers	_____	_____	_____	_____	_____	_____	_____
3. Formal training you received at the SS School	_____	_____	_____	_____	_____	_____	_____
4. On the job training you've received	_____	_____	_____	_____	_____	_____	_____
5. Quality of your food service equipment	_____	_____	_____	_____	_____	_____	_____

APPENDIX F

INTERVIEW QUESTIONS FOR ON DUTY
SS SCHOOL GRADUATES

ON DUTY SS INTERVIEW

1. (If yes in B). I see you've had food service training before you came into the Coast Guard. Where was that? What type of training?
2. In the survey (D2) you said that the galley phase was _____ in preparing you for your first SS assignment. What is the main reason you feel it was _____?

Any other reasons?

3. Were there any aspects of the galley phase that were good/bad? (The opposite direction from the answer to 2).
4. (If **other than just right** in F2). Why do you say that there was _____ time in the galley phase?

How long should it be?

NEW GRADUATES ONLY

5. In the survey (D1) you said that the laboratory phase was _____ in preparing you for your first assignment. What is the main reason you feel it was _____?

Any other reasons?

6. Were there any aspects of the laboratory phase that were good/bad? (The opposite direction from the answer to 5)
7. (If **other than just right** in F1). Why do you say that there was _____ time in the laboratory phase? How long should it be?

ALL GRADUATES

8. In what single area do you think the SS School best prepared you? Any other areas where the school preparation was very good?
9. In what single area do you think the SS School prepared you least well? Any other areas where the school did not prepare you well?
10. Is there any area you can think of that should be **added** to or taught more in the SS course? Others?
11. Is there any area you can think of that should be **deleted** from or taught less in the SS course?
12. What single thing stands out in your mind as being the most helpful thing that happened to you at the SS School?

APPENDIX G

**A SURVEY FORM FOR SS SUPERVISOR
EVALUATION OF TRAINING**

ON DUTY SS SUPERVISOR EVALUATION OF TRAINING

The Natick Research and Development Command is cooperating with the U.S. Coast Guard Training and Evaluation Division in evaluating Subsistence Specialist School Training Programs. **WE NEED YOUR HELP.** We have asked that surveys be given to your two most recent graduates of the SS School. In this survey, you can be of great assistance by giving us some information about the performance of these two men as well as some of your opinions about the quality of training given by the SS School. You can help **only** if you tell us how you **really** feel. Your opinions will be kept in strict confidence and **will in no way** affect you or the two workers we ask you about. Do not sign your name on the survey.

Thank you

- A. We know when your newest PO3 started working for you, but we don't know how long your most recent graduate from the **old** SS School program (before November 1975) has been under your supervision. Since he is the second individual filling out our survey, we would like to know how many months he has worked for you.

_____ months

- B. Now we would like you to compare the present performance of your new PO3 on the job to your most recent graduate of the "old" SS School in several categories using the following scale:

1	2	3	4	5	6	7
New PO3 much better	New PO3 better	New PO3 slightly better	About the same	New PO3 slightly worse	New PO3 worse	New PO3 much worse

For each of the categories listed below, please circle the number which best describes your opinion of how these two individuals compare in that category.

EXAMPLE: You feel that the new PO3 performs better than the "old" graduate when sharpening knives; you would circle 2 next to sharpening knives. You feel that the new PO3 is slightly worse in preparing chili; you would circle 5 next to preparing chili.

Your answers would look like this:

- | | |
|---------------------|------------------------------|
| 1. Knife sharpening | 1 2 3 4 5 6 7 |
| 2. Preparing chili | 1 2 3 4 5 6 7 |

1	2	3	4	5	6	7
New PO3 much better	New PO3 better	New PO3 slightly better	About the same	New PO3 slightly worse	New PO3 worse	New PO3 much worse

Category	New PO3 better or worse?						
1. Baking simple bakery products	1	2	3	4	5	6	7
2. Using galley and pantry equipment	1	2	3	4	5	6	7
3. Handling basic meat cooking procedures	1	2	3	4	5	6	7
4. Handling basic vegetable cooking procedures	1	2	3	4	5	6	7
5. Making soups	1	2	3	4	5	6	7
6. Making sauces and gravies	1	2	3	4	5	6	7
7. Using and converting Armed Forces Recipe Service Cards	1	2	3	4	5	6	7
8. Standing a duty watch	1	2	3	4	5	6	7
9. Handling, cutting, and thawing meat, seafood, and poultry	1	2	3	4	5	6	7
10. Short order cooking	1	2	3	4	5	6	7
11. Storing perishable and dry subsistence items	1	2	3	4	5	6	7
12. Conserving and using subsistence items to reduce waste	1	2	3	4	5	6	7
13. Preparing menus for a well balanced diet	1	2	3	4	5	6	7
14. Displaying a proper "cover" for a wardroom table	1	2	3	4	5	6	7
15. Taking inventories	1	2	3	4	5	6	7
16. Breaking out stock from bulk storerooms	1	2	3	4	5	6	7
17. Completing requisition and cost record forms	1	2	3	4	5	6	7
18. Serving foods at proper temperatures	1	2	3	4	5	6	7
19. Controlling serving portions	1	2	3	4	5	6	7
20. Presenting food on the serving line	1	2	3	4	5	6	7
21. Personal hygiene	1	2	3	4	5	6	7

1	2	3	4	5	6	7
New PO3 much better	New PO3 better	New PO3 slightly better	About the same	New PO3 slightly worse	New PO3 worse	New PO3 much worse

Category	New PO3 better or worse?						
22. Keeping food service equipment clean and sanitary	1	2	3	4	5	6	7
23. Keeping galley, wardroom or mess deck area clean and sanitary	1	2	3	4	5	6	7
24. Assisting in maintaining officer's quarters	1	2	3	4	5	6	7
25. Making seating arrangements for officers	1	2	3	4	5	6	7
26. Customer relations	1	2	3	4	5	6	7

C. In the current SS School curriculum there are two types of practical "hands on" cooking experience: in the regular galley where meals are actually produced for school students, and in a laboratory which comes before the galley phase. We are interested in how helpful you feel these two different types of "hands on" training might be in preparing a student for his first SS assignment. Please check one response for each type of training.

1. Laboratory

_____	_____	_____	_____	_____
Not Helpful	Slightly Helpful	Helpful	Very Helpful	Extremely Helpful

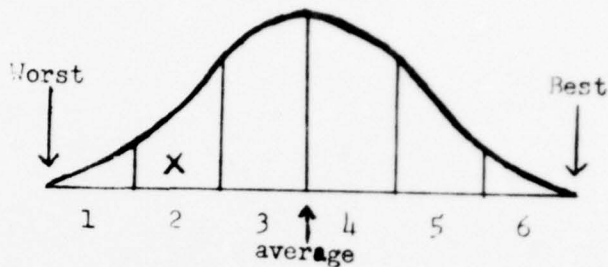
2. Actual galley

_____	_____	_____	_____	_____
Not Helpful	Slightly Helpful	Helpful	Very Helpful	Extremely Helpful

D. If the SS course were split into two categories, the lecture portion and the "hands on" portion, which of the two do you feel is more important in preparing graduates for their first SS assignment?

_____	_____	_____	_____	_____	_____	_____
Lecture much more important	Lecture more important	Lecture slightly more important	Both are equally important	Hands on slightly more important	Hands on more important	Hands on much more important

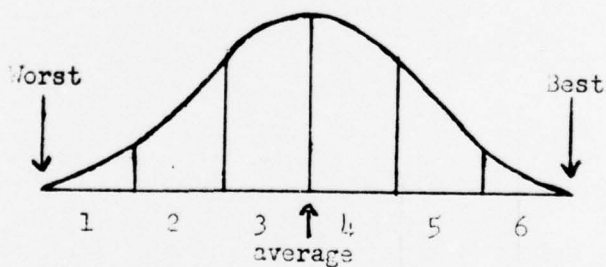
- E. If we were to draw a picture of all of the SS School graduates it might look like this, with most being average, and only one being the best, and one, the worst.



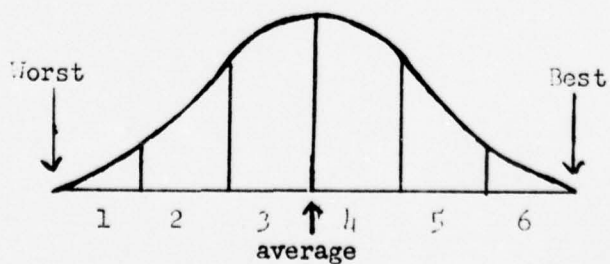
Using the two blank graphs below, please place an X in one of the numbered sections on each of the graphs to tell us how you would rate the two individuals concerned compared to all previous SS graduates with which you have had experience.

EXAMPLE: Look back at the graph above. Our X in that graph would indicate an individual in category 2, about halfway between the worst and the average graduate.

Please compare your newest PO3 to other SS graduates on this graph.



Please compare your most recent "old" graduate to other SS graduates on this graph.



APPENDIX H

**INTERVIEW QUESTIONS FOR SS SCHOOL
SUPERVISORS**

SS Supervisor Interview

1. When (~~each~~ **new graduate in turn**) came on board, was he fully prepared to do his PO3 job independently, or did he need assistance?

If so, how much and in what areas?

2. In your opinion, did the new graduate need more help than graduates from the "old" SS School who've worked for you?

3. In the survey (C2) you said you thought the galley phase was _____ in preparing school graduates for their first assignment. What is the main reason you feel it is _____? Any other reasons?

4. In the survey (C1) you said you thought the laboratory phase was _____ in preparing school graduates for their first assignment. What is the main reason you feel it is _____?

5. In what single area do you think the SS School **best** prepares graduates?

Any other areas where school preparation is very good?

6. In what single area do you think the SS School prepares graduates least well?

Any other areas where the school does not prepare them well?

7. Is there any area you can think of that should be **added** to or taught more in the SS course?

Any others?

8. Is there any area you can think of that should be **deleted** from or taught less in the SS course?

Any others?